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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/760,981	01/16/2001	Robert D. LoGalbo	CM04762H	6033

22917 7590 05/20/2004

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EXAMINER

DUONG, FRANK

ART UNIT PAPER NUMBER

2666

DATE MAILED: 05/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/760,981

Applicant(s)

LOGALBO ET AL.

Examiner

Frank Duong

Art Unit

2666

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) 13-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2</u> . | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 2666

DETAILED ACTION

1. This Office Action is a response to the Election and Petition under 37 CFR 1.137(b) dated 2/17/04 and 2/26/04, respectively. Claims 1-32 are pending in the application. Per Election dated 2/17/2004, Applicants elected claims 1-12 for prosecution on the merits. Thus, non-elected claims 13-32 are withdrawn from consideration. In a response to this Office Action, Applicants should cancel the non-elected claims 13-32 to expedite the prosecution, should the response place the application in condition for allowance.

Information Disclosure Statement

2. The information disclosure statement filed 7/11/2002 complies with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609. It has been considered and placed in the application file.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-9 and 11-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Polyzos et al (*Enhancing Wireless Internet Links for Multimedia Services, Workshop on Mobile Multimedia Communications, pages 1-6, October 1998*) (hereinafter "Polyzos").

Art Unit: 2666

Regarding **claim 1**, in accordance with Polyzos reference entirety, Polyzos discloses a method comprising:

identifying (*packet classifier*), for a packet to be transmitted over a wireless link, a type of service from among at least a first and second type of service (ToS) (*page 4, left column, last paragraphs, Polyzos discloses the packet classifier decides which service should handle each packet, and sends it there for further processing*);

determining an acknowledgement requirement corresponding to the type of service (*page 4, left column, last paragraph, Polyzos discloses static rules can be set up to match IPv4 Type of Service (ToS) bits, IPv6 flow IDs, or protocol/port pairs (denoting applications that use well known ports), with underlying service*);

sending a slot comprising at least a portion of the packet from a sending device to a receiving device (*the sending and receiving devices are not shown; However, they're inherent in a wireless and mobile communications system disclosed on page 1, left column*) (*page 4, right column, last paragraph, Polyzos discloses the packet scheduler then selects the packet at the head of the queue corresponding to the service whose turn is to transmit, and sends it to the MAC layer for transmission*);

performing, by the receiving device, the acknowledgement requirement corresponding to the type of service, based on an error status of the slot (*page 4, right column, last paragraph, Polyzos discloses if a service needs to retransmit packet (ARQ) or encode them (FEQ), or both, it simply places the appropriate packets in its queue*) .

Art Unit: 2666

Regarding **claim 2**, in addition to features recited in base claim 1 (see rationales discussed above), Polyzos further discloses wherein the step of determining an acknowledgment requirement comprises: if the packet is associated with a first type of service, not requiring acknowledgement of the slot by the receiving device; and if the packet is associated with a second type of service, requiring acknowledgement of the slot by the receiving device if the slot is received without error (*page 4, right column, last paragraph, Polyzos discloses if a service needs to retransmit packet (ARQ) or encode them (FEQ), or both, it simply places the appropriate packets in its queue*).

Regarding **claim 3**, in addition to features recited in base claim 2 (see rationales discussed above), Polyzos further discloses wherein the first type of service comprises a minimize-delay service and the second type of service comprises a maximize-reliability service (*not shown; inherent in IPv4 ToS and the description at page 4, left column, last paragraph, Polyzos discloses static rules can be set up to match IPv4 Type of Service (ToS) bits*).

Regarding **claim 4**, in addition to features recited in base claim 3 (see rationales discussed above), Polyzos further discloses wherein the step of performing the acknowledgment requirement comprises the receiving device: not acknowledging reception of slots associated with minimize-delay service; and acknowledging reception of slots associated with maximize-reliability service, if the slots are received without error (*page 5, left column, last paragraph to right column, first paragraph, Polyzos discloses for each service separately the link layer tracks and reports performance metrics such as reliability, delay and throughput, updating them regularly*

Art Unit: 2666

by combining current and past measurement and the measurements are used in error recovery. The recitation thereat implicitly and inherently reads on the claimed limitation as recited).

Regarding **claim 5**, in addition to features recited in base claim 2 (see rationales discussed above), Polyzos further discloses wherein the first type of service comprises a minimize-delay service and the second type of service comprises a default service (*page 5, left column, last paragraph; delay and reliability services*).

Regarding **claim 6**, in addition to features recited in base claim 5 (see rationales discussed above), Polyzos further discloses wherein the step of performing the acknowledgment requirement comprises the receiving device: not acknowledging reception of slots associated with minimize-delay service; and acknowledging reception of slots associated with default service, if the slots are received without error (*page 5, left column, last paragraph to right column, first paragraph, Polyzos discloses for each service separately the link layer tracks and reports performance metrics such as reliability, delay and throughput, updating them regularly by combining current and past measurement and the measurements are used in error recovery. The recitation thereat implicitly and inherently reads on the claimed limitation as recited*).

Regarding **claim 7**, in addition to features recited in base claim 1 (see rationales discussed above), Polyzos further discloses wherein the step of determining an acknowledgement requirement is accomplished by the sending device, the method further comprising sending, from the sending device to the receiving device, indicia of

Art Unit: 2666

the acknowledgement requirement (*not shown; inherent in a TCP packet from the transmitting end due the nature of the TCP transmission required acknowledgement*).

Regarding **claim 8**, in addition to features recited in base claim 1 (see rationales discussed above), Polyzos further discloses wherein the step of determining an acknowledgement requirement is accomplished by the receiving device (*not shown; inherent in a TCP packet reception at the receiving end due the nature of the TCP transmission required acknowledgement whether ACK/NACK*).

Regarding **claim 9**, in addition to features recited in base claim 1 (see rationales discussed above), Polyzos further discloses before sending the slot: if the packet is associated with a first type of service, encoding the at least a portion of the packet using a error correcting code of a first rate; and if the packet is associated with a second type of service, encoding the at least a portion of the packet using a error correcting code of a second rate (*page 3, left column; Polyzos discloses it is preferable to offer QoS level appropriate to each type of higher layer protocol or application. The recitation thereat implicitly and inherently reads on the claimed limitation as recited*).

Regarding **claim 11**, in addition to features recited in base claim 1 (see rationales discussed above), Polyzos further discloses wherein the sending device comprises a repeater and the receiving device comprises a communication unit (*page 1, left column; Introduction*).

Regarding **claim 12**, in addition to features recited in base claim 1 (see rationales discussed above), Polyzos further discloses wherein the sending device

Art Unit: 2666

comprises a communication unit and the receiving device comprises a repeater (*page 1, left column; Introduction*).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Polyzos.

Regarding **claim 10**, in addition to features recited in base claim 9 (see rationales discussed above), Polyzos fails to further disclose wherein the error correcting code of the first rate comprises a rate [fraction (3/4)] convolutional code and the error correcting code of the second rate comprises a rate [fraction (1/2)] convolutional code. Polyzos deals with Link layer mostly and keeps silence of the Physical layer. Examiner is taking an Official Notice that the limitation of "wherein the error correcting code of the first rate comprises a rate [fraction (3/4)] convolutional code and the error correcting code of the second rate comprises a rate [fraction (1/2)] convolutional code" in variable modulation schemes to provide different rate or different level of protection for certain type of data in unequal error protection.

Thus, it would have been obvious to those skilled in the art at the time of the invention was made to incorporate variable modulation schemes or unequal error

Art Unit: 2666

protection to arrive the claimed invention with a motivation to provide different rate or different level of protection for certain type of data.

Response to Arguments

5. Applicant's election with traverse of claims 1-12 in Paper No. 7 is acknowledged. The traversal is on the ground(s) that all claims are properly presented in the same application and undue diverse searching should not be required because to do a complete and comprehensive search of the broad inventive concept disclosed and claimed in this application, the Examiner will have to search the same classes and subclasses.

In response Examiner respectfully disagrees. This is not found persuasive because the claimed inventions direct to different species and the Applicants fails to submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case.

Thus, contradistinction to the Applicants' argument, the restriction is proper for the above rationales.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Forlow (USP 6,608,832).

Kim (USP 6,172,971).

Art Unit: 2666

Alanara et al (USP 5,878,351).

Chapman et al (USP 5,970,063).

Xylomenos et al, Enhancing Wireless Internet Links, ICT, pages 1-4, 1998.

Choi et al, A Cellular Wireless Local Area Network with QoS Guarantees for Heterogeneous Traffic, ACM, pages 1-21, 1997.

Immonen, QoS in GPRS and UMTS, Tampere University of Technology, pages 1-25, 2000.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frank Duong whose telephone number is (703) 308-5428. The examiner can normally be reached on 7:00AM-3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (703) 308-5463. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Application/Control Number: 09/760,981

Page 10

Art Unit: 2666

A handwritten signature in black ink, appearing to read 'Frank Duong', with a stylized flourish at the end.

Frank Duong
Examiner
Art Unit 2666

May 3, 2004